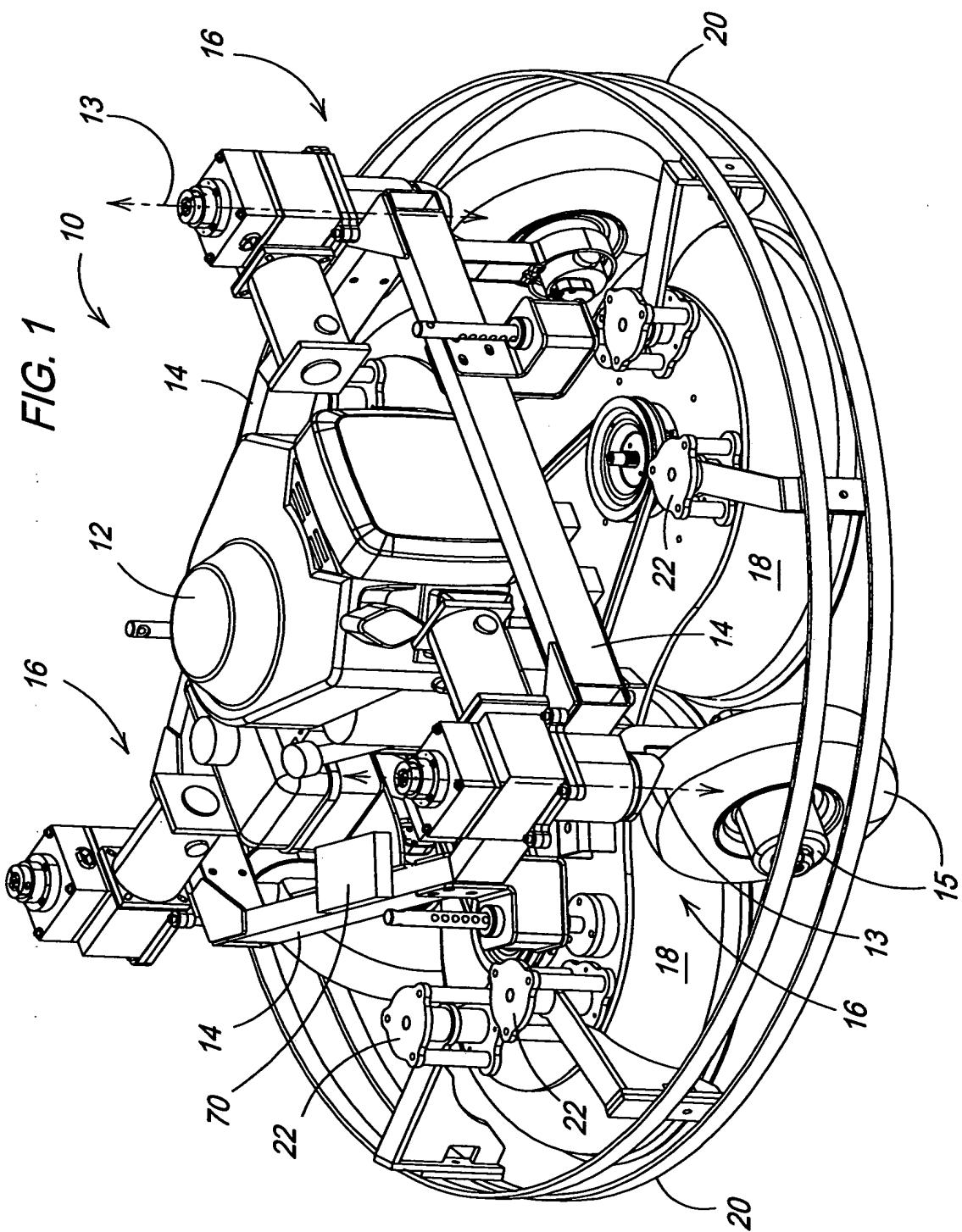


TITLE: SELF-PROPELLED MOWER HAVING
ENHANCED MANEUVERABILITY
INVENTOR: Kenneth Edward Hunt
DOCKET #: 16359 D2 /deb, mah

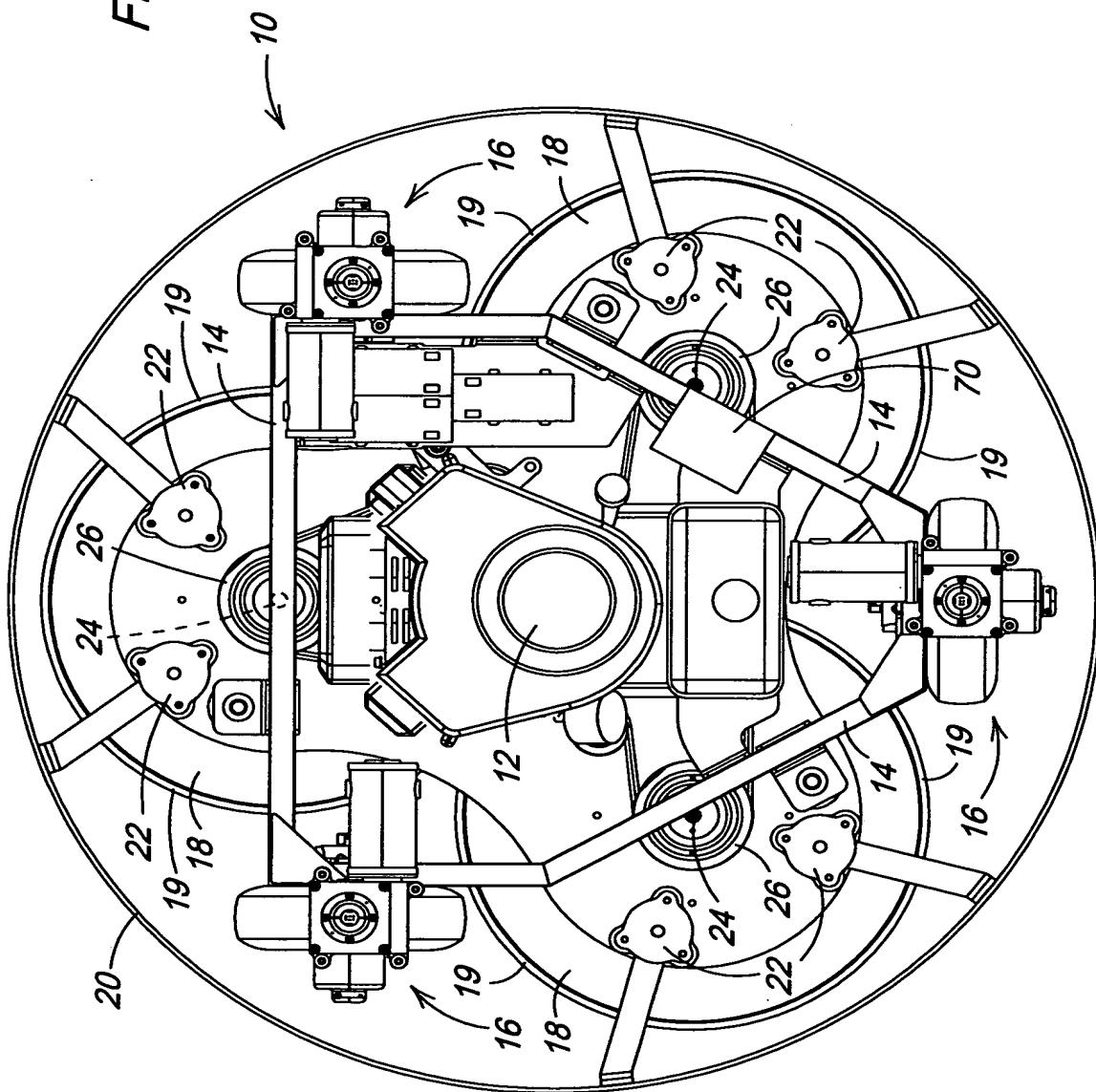
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INVENTOR: Kenneth Edward Hunt
DOCKET #: 16359 D2 /deb, mah

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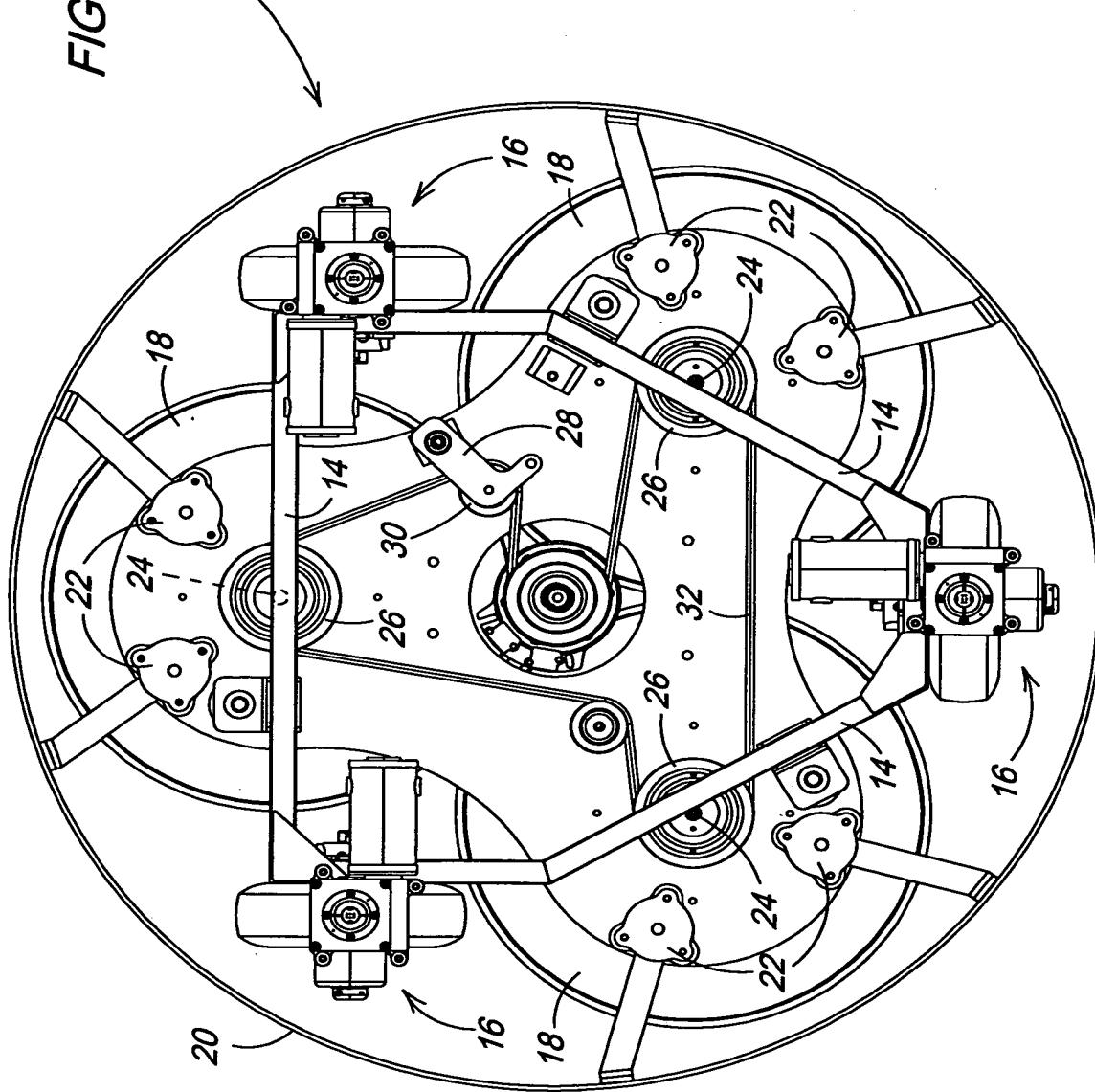
FIG. 2



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INVENTOR: Kenneth Edward Hunt
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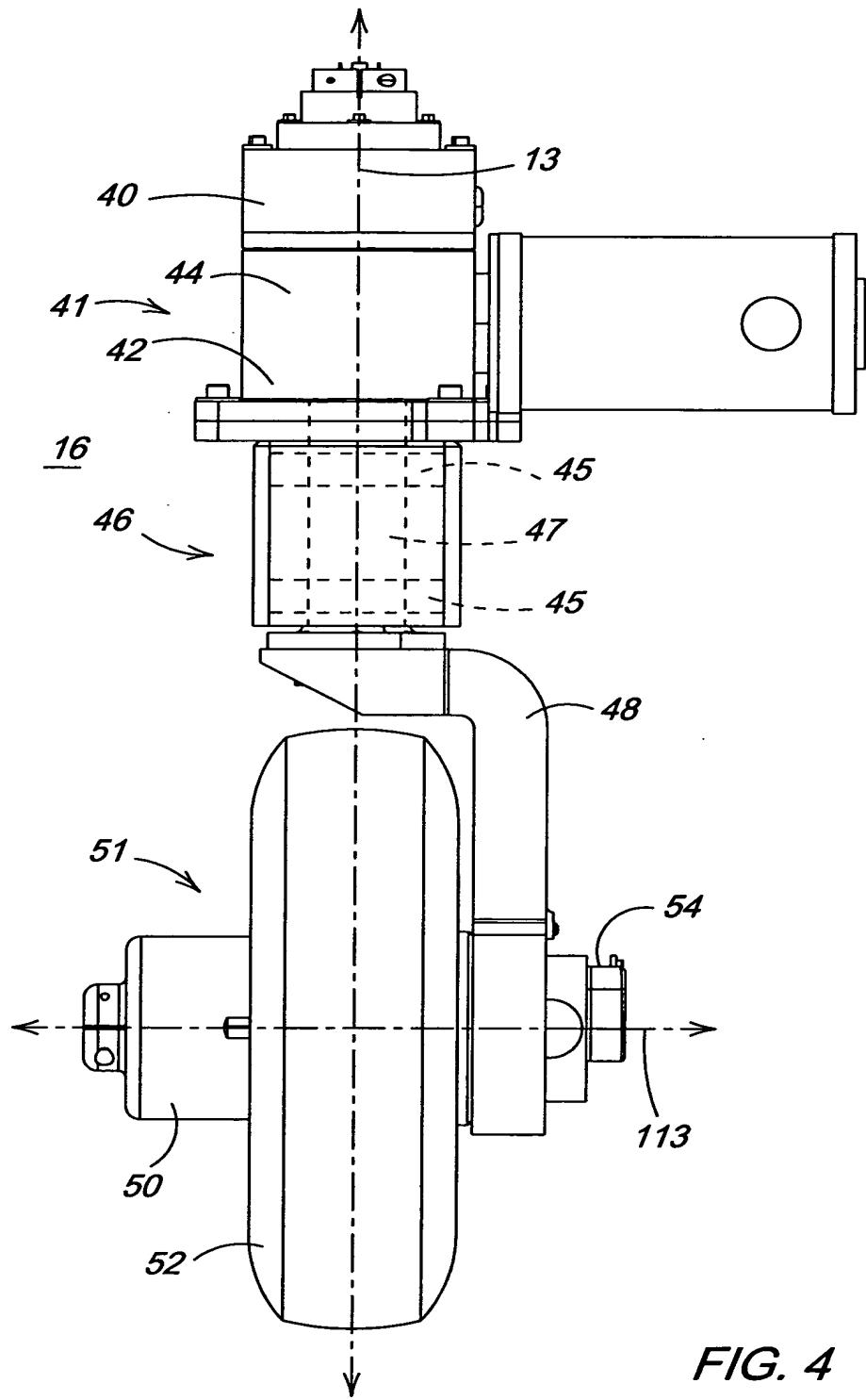
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FIG. 3



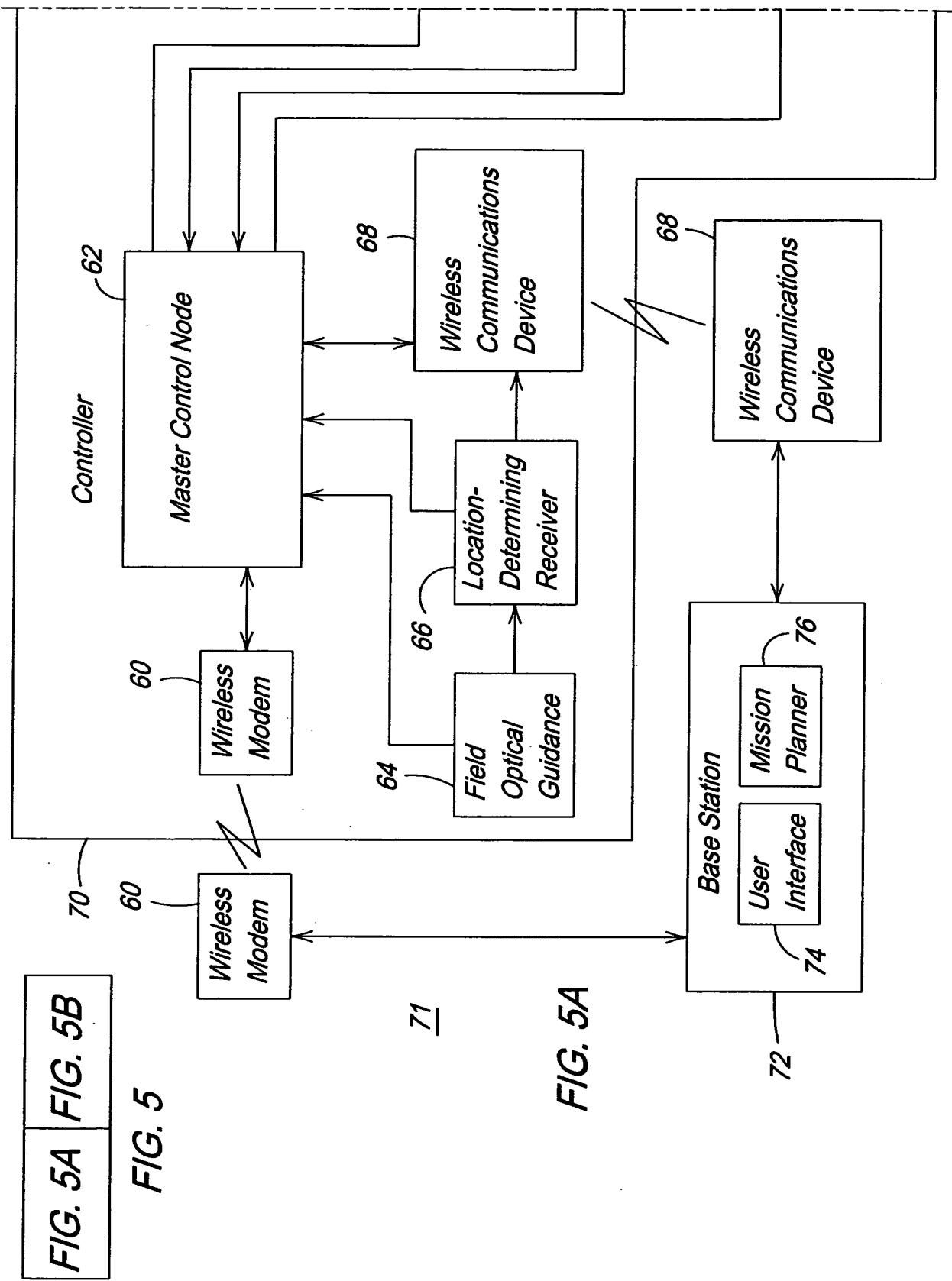
TITLE: SELF-PROPELLED MOWER HAVING
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INVENTOR: Kenneth Edward Hunt
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TITLE: SELF-PROPELLED MOWER HAVING
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DOCKET #: 16359 D2 /deb, mah

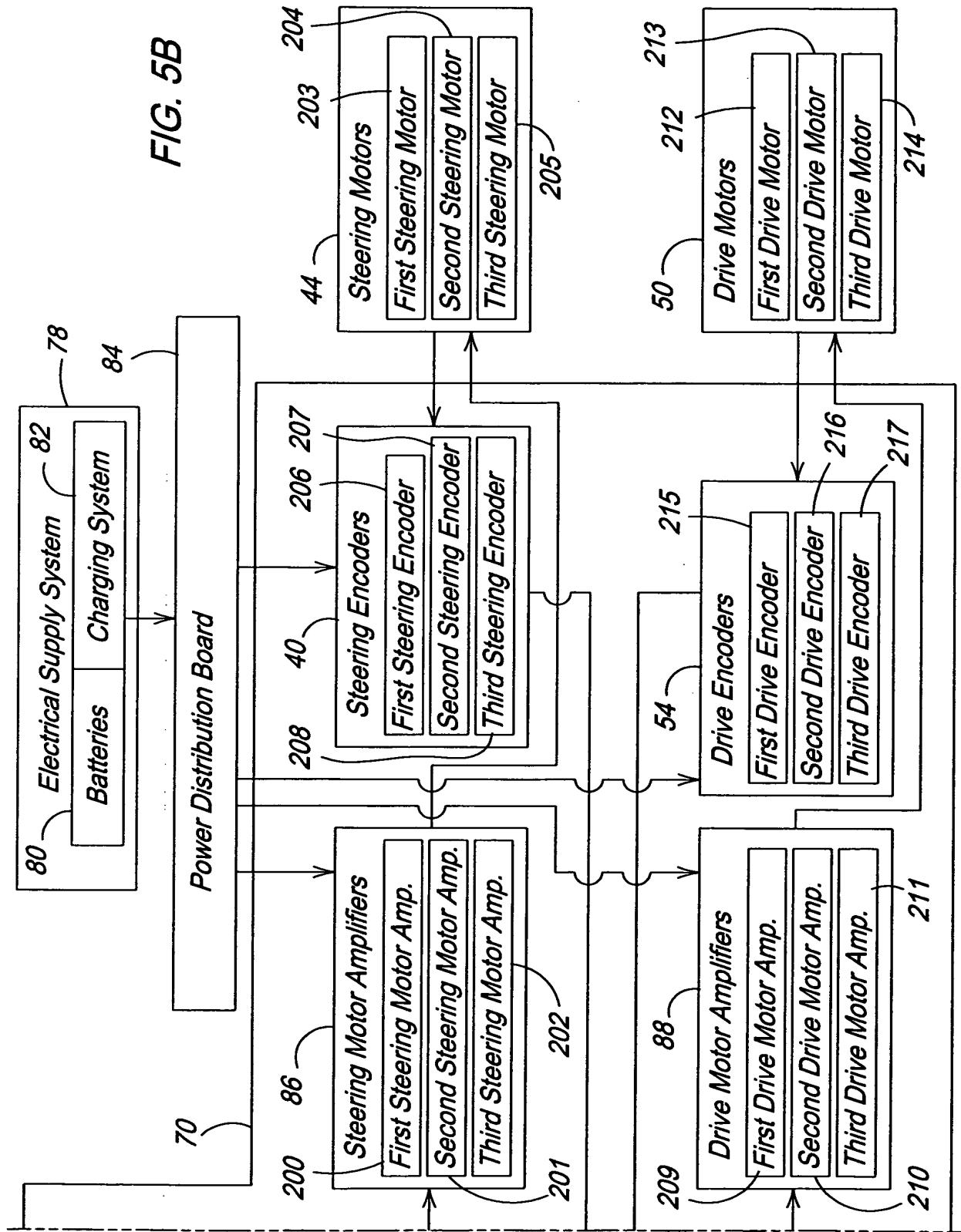
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INVENTOR: Kenneth Edward Hunt
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FIG. 5B



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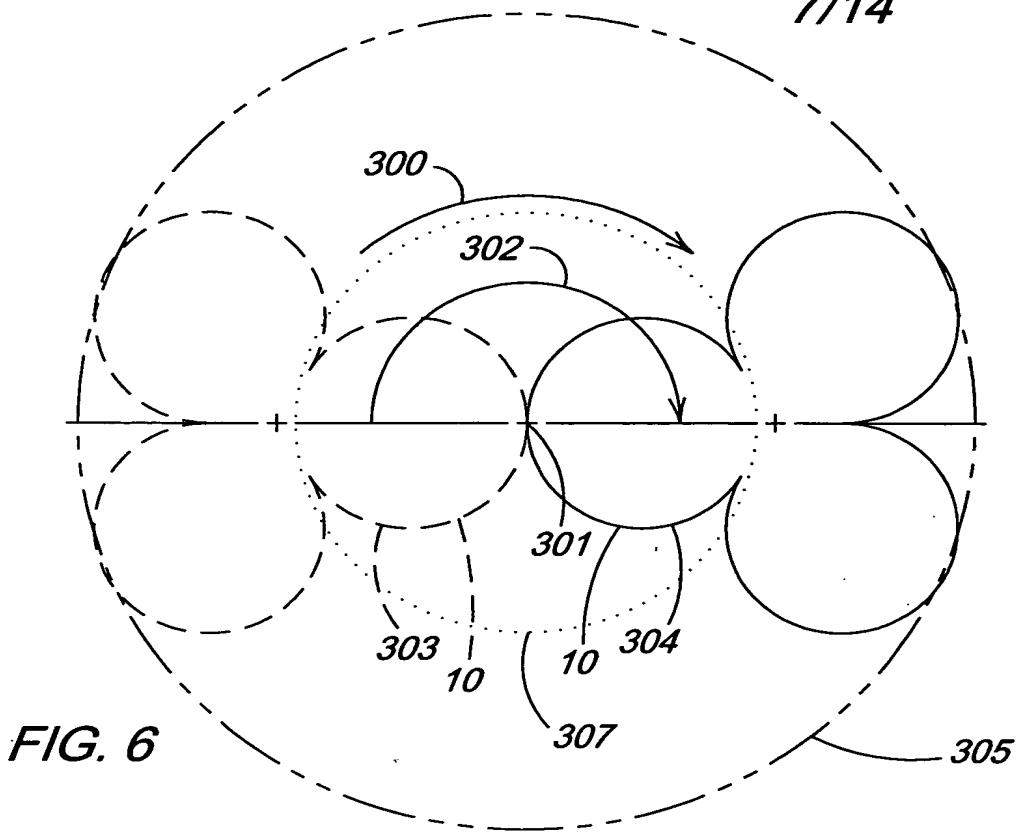


FIG. 6

IDENTIFY A TARGET AREA FOR APPLICATION OF THE APPROXIMATELY ZERO RADIUS TRIM MANEUVER.

POSITION A CRITICAL POINT (E.G., AN EDGE OF THE MOWING DECK OR AN OUTER EDGE OF A CUTTING BLADE) OF THE MOWER OVER A REFERENCE AXIS OF ROTATION.

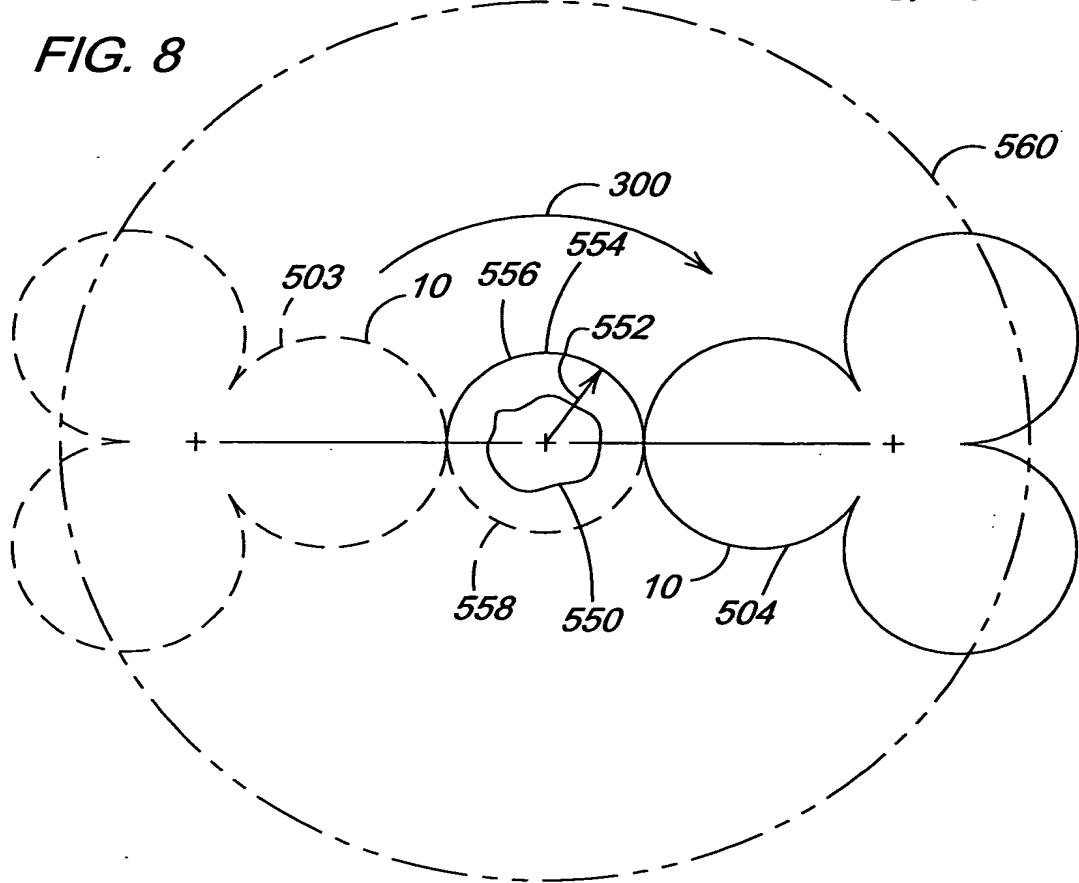
ORIENT THE WHEELS GENERALLY TANGENTIALLY TO AN ARC ABOUT THE REFERENCE AXIS OF ROTATION.

CONTROL THE APPLICATION OF ROTATIONAL MECHANICAL ENERGY TO ONE OR MORE OF THE WHEELS TO ROTATE THE MOWER ABOUT THE REFERENCE AXIS OF ROTATION BY A DESIRED REVOLUTIONAL AMOUNT (E.G., FRACTION AND/OR NUMBER OF REVOLUTIONS).

FIG. 7

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FIG. 8



S500
IDENTIFY A TARGET AREA FOR APPLICATION OF THE NEAR ZERO RADIUS TRIM OR GREATER THAN ZERO RADIUS TRIM MANEUVER.

S501
POSITION A CRITICAL POINT OF THE MOWING DECK OR AN OUTER PERIPHERY OVER A REFERENCE ARC.

S502
ALIGN THE STEERED DIRECTION OF THE WHEELS TO BE GENERALLY TANGENTIAL TO RESPECTIVE ARCS THAT ARE GENERALLY CONCENTRIC WITH RESPECT TO THE REFERENCE ARC.

S504
CONTROL THE APPLICATION OF ROTATIONAL MECHANICAL ENERGY TO ONE OR MORE OF THE WHEELS TO ROTATE THE MOWER ABOUT THE OBJECT BY A DESIRED FRACTION AND/OR NUMBER OF REVOLUTIONS.

FIG. 9

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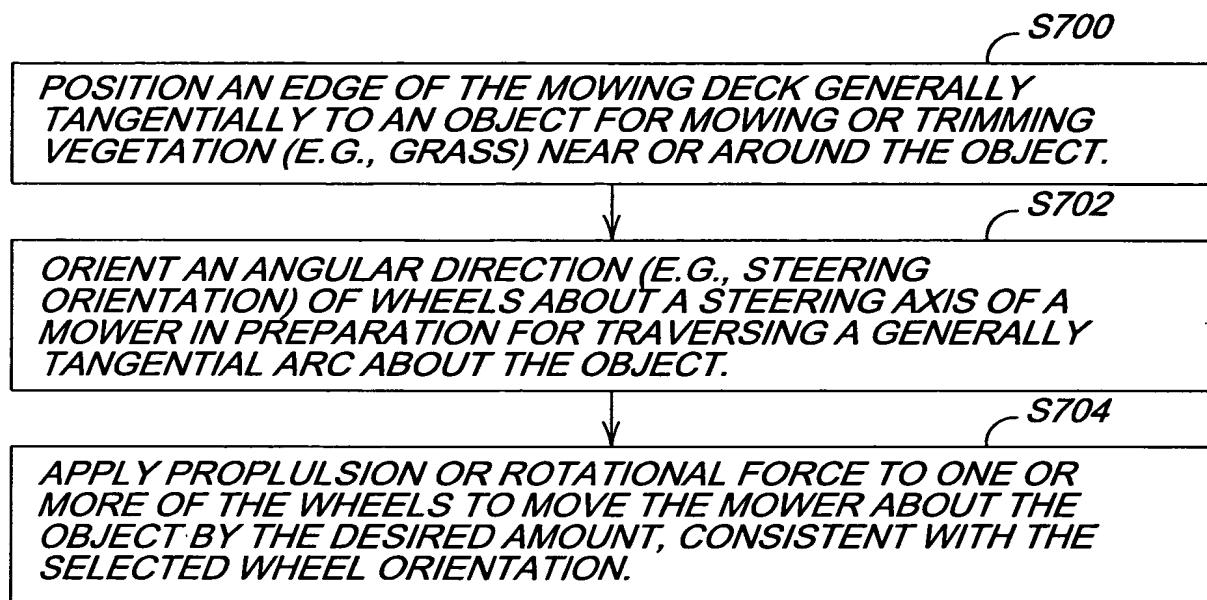
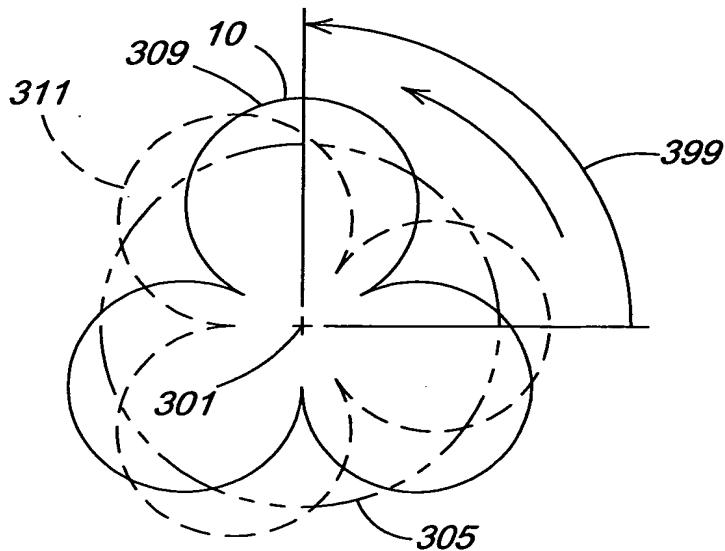


FIG. 10

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FIG. 11



S108
DEFINE AN AXIS OF ROTATION AT A DESIRED POINT ALONG
A PATH SEGMENT OF THE MOWER.

S110
ORIENT THE WHEELS GENERALLY TANGENTIALLY TO A
CIRCULAR REGION ABOUT THE DESIRED AXIS OF ROTATION.

S112
APPLY ROTATIONAL MECHANIZED ENERGY TO ONE OR MORE
OF THE WHEELS TO ROTATE THE MOWER BY A DESIRED
ANGULAR AMOUNT (E.G., 90 DEGREES FOR A RIGHT ANGLE
TURN).

S114
STOP THE APPLICATION OF ROTATIONAL ENERGY UPON
COMPLETION OF ROTATION BY THE DESIRED ANGULAR
AMOUNT.

S116
REORIENT THE WHEELS TOWARD THE DIRECTION OF A
DESIRED PATH SEGMENT.

FIG. 12

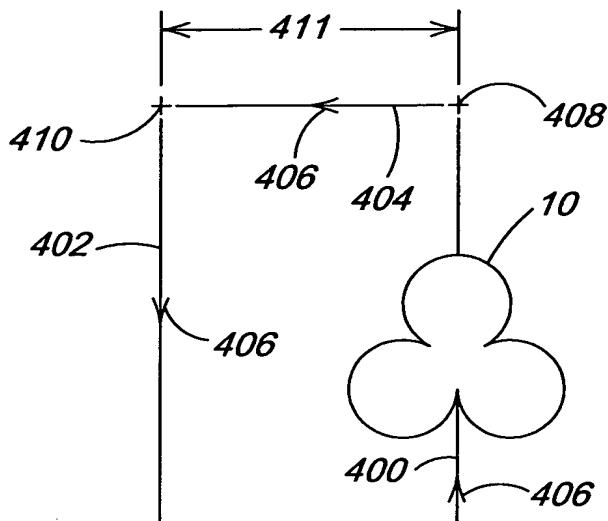


FIG. 13

MOVE THE MOWER ALONG A FIRST GENERALLY LINEAR ROW OF A PATH PLAN.

DEFINE AN END POINT OF THE FIRST GENERALLY LINEAR ROW AS A FIRST AXIS OF ROTATION.

ROTATE THE MOWER BY APPROXIMATELY 90 DEGREES WITH RESPECT TO THE FIRST AXIS OF ROTATION.

MOVE THE VEHICLE ALONG A TRANSVERSE SECTION THAT IS SUBSTANTIALLY ORTHOGONAL TO THE FIRST GENERALLY LINEAR ROW.

DEFINE AN END POINT OF THE TRANSVERSE SECTION AS A SECOND AXIS OF ROTATION.

ROTATE THE MOWER BY APPROXIMATELY 90 DEGREES WITH RESPECT TO THE SECOND AXIS OF ROTATION.

MOVE THE MOWER ALONG A SECOND GENERALLY LINEAR ROW IN A GENERALLY OPPOSITE DIRECTION WITH RESPECT TO MOVEMENT OF THE MOWER ALONG THE FIRST GENERALLY LINEAR ROW.

FIG. 14

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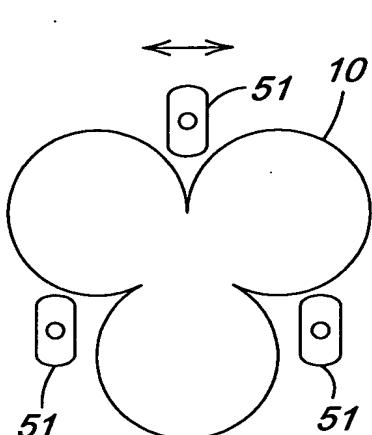


FIG. 15A

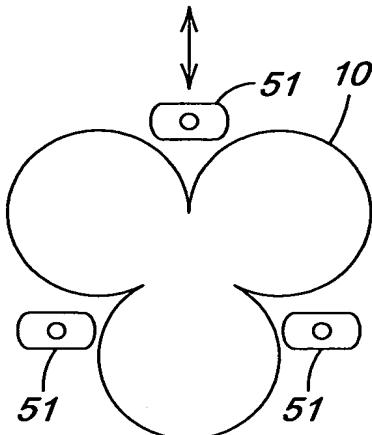


FIG. 15B

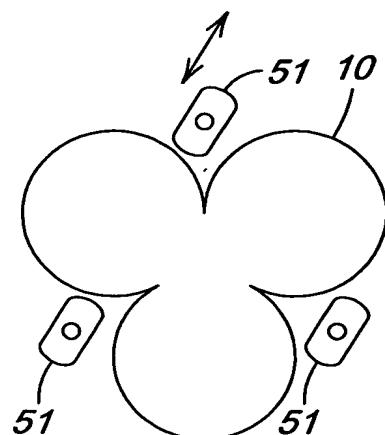


FIG. 15C

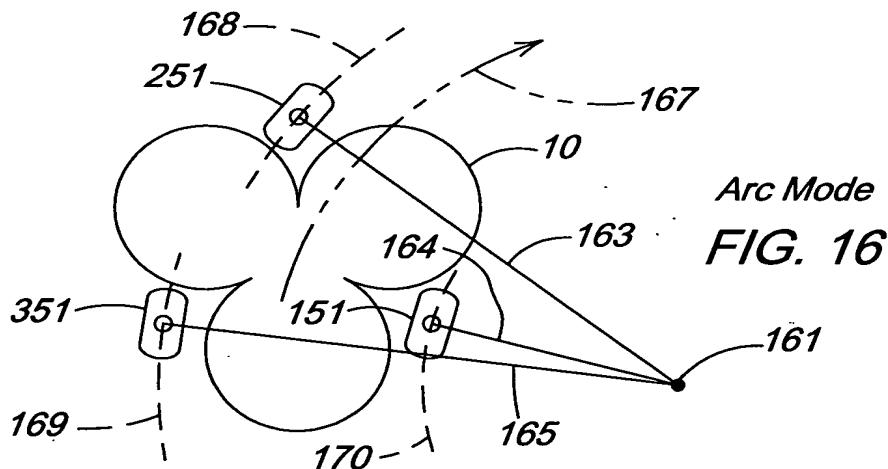


FIG. 16

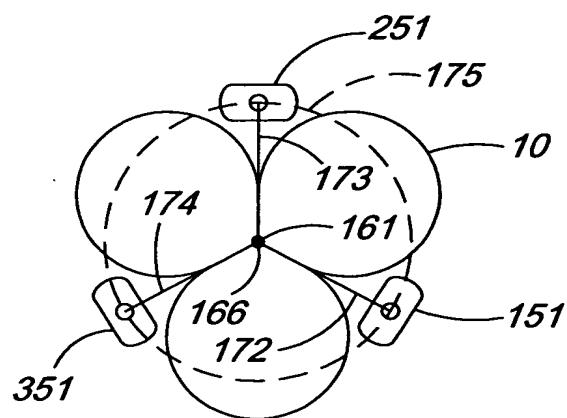
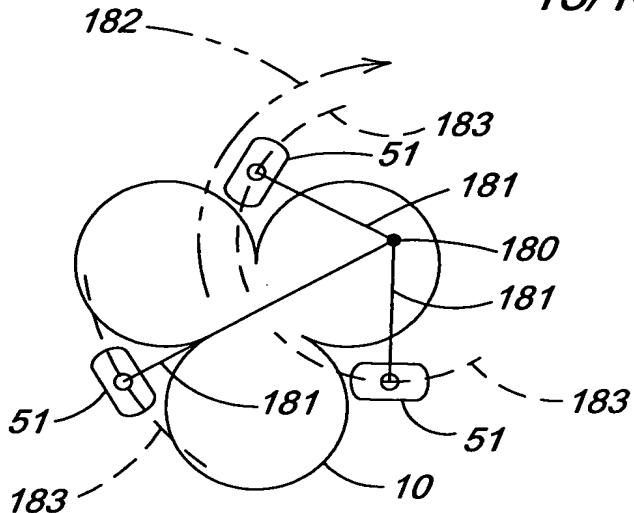


FIG. 17

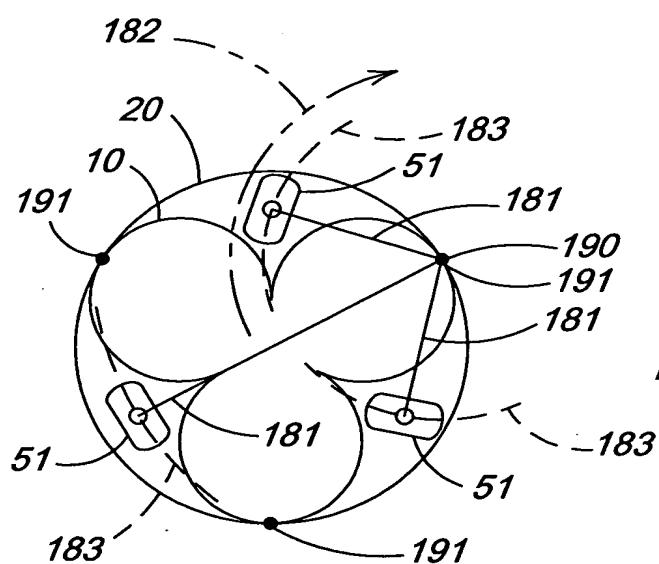
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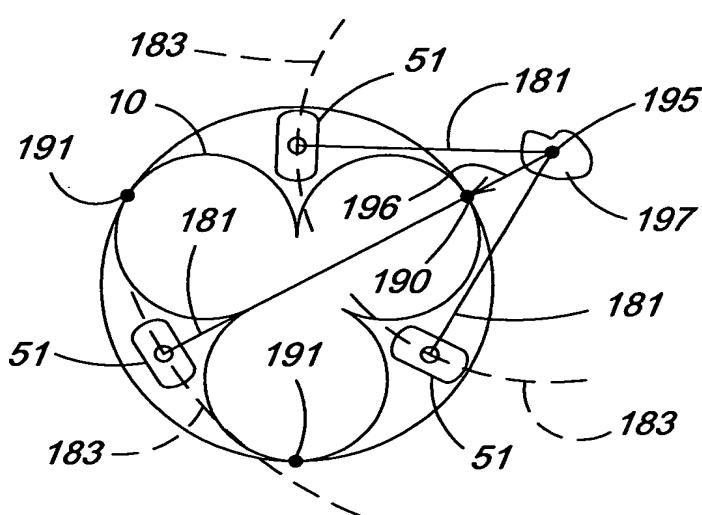
Interior Arc Mode

FIG. 18



Trim Mode (Zero Radius)

FIG. 19



*Trim Mode
(Greater Than Zero Radius)*

FIG. 20

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FIG. 21

- Path Plan Data*
- 1st Path Segment*
- Starting Coordinate (X_1, Y_1)*
 - Destination Coordinate (X_2, Y_2)*
 - Mode (E.g., Linear, Arc, Rotating or Combination) (M_1)*
 - Reference Point Coordinate (Where Applicable) (R_1)*
- 2nd Path Segment*
- Starting Coordinate (X_2, Y_2)*
 - Destination Coordinate (X_3, Y_3)*
 - Mode (M_2)*
 - Reference Point (R_2)*
- ⋮
- Nth Path Segment*
- Starting Coordinate (X_N, Y_N)*
 - Destination Coordinate (X_{N+1}, Y_{N+1})*
 - Mode (M_N)*
 - Reference Point (R_N)*

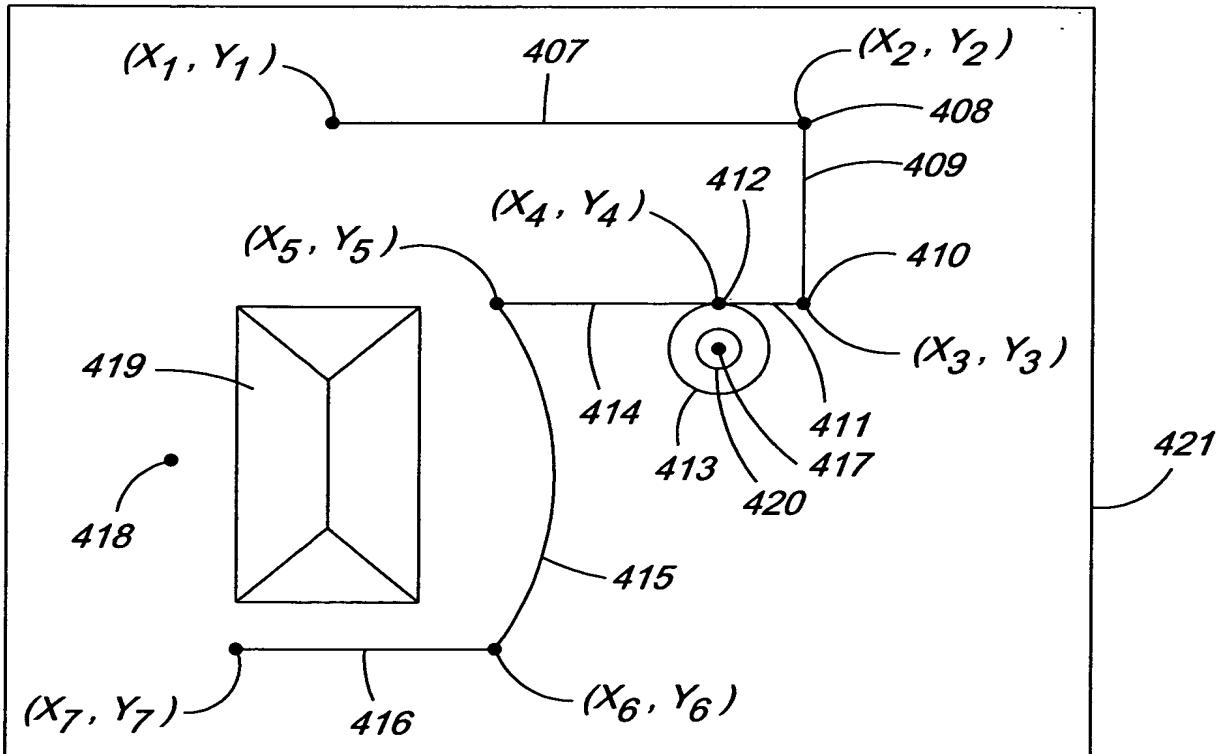


FIG. 22